

SAC PROGRAMMATIC REVIEW—FALL 2009

MARITIME HERITAGE: May – October 2009 Deborah Marx and Mathew Lawrence

***EDUCATION AND OUTREACH**

- Staff hosted a showing of the Science Channel production “Science of the Deep – the Wreck of the Steamship *Portland*” at the Cape Cod National Seashore’s Province Lands Visitor Center in Provincetown, MA in July. The event, sponsored by the Friends of the Cape Cod National Seashore, was part of the Sunday night lecture series that ran throughout July and August.
- SBNMS participated in the Gloucester Maritime Heritage Center’s Demonstration Day on Saturday, 9 May. The event celebrated the opening of the Gorton’s Seafood Gallery and the new exhibit “Fitting Out” that tells the story of Gloucester’s shore side fishery industries in the early 20th century. Sanctuary staff offered information about archaeological research projects and maritime heritage and set up a mock shipwreck to teach interested members of the public underwater archaeology techniques.
- SBNMS participated in the Gloucester Maritime Heritage Center’s 7th annual Heritage Day on 5 September. Held in conjunction with the Gloucester Schooner Festival, Heritage Day featured tours of Canada’s schooner *Bluenose II*, schooners *Unicorn* and *Pride of Baltimore II*, hands on activities, and multimedia displays from the sanctuary as well as local cultural and nonprofit organizations.
- The SBNMS You Tube site has over 120 subscribers. The top viewed video is a wolfish with over 21,000 views. There are 31 videos available on the site that highlights the sanctuary’s maritime heritage, marine mammals, biodiversity, and seabirds. In total, the videos have been viewed more than 40,000 times. The website address is: <http://www.youtube.com/SBNMS>
- Staff created a SBNMS Facebook page to inform interested parties about the sanctuary. So far the page has 20 fans. There are two ways to reach the Facebook page. If you have a Facebook account type “NOAA’s Stellwagen Bank National Marine Sanctuary” into the search box at the top right hand of the page or visit:
<http://www.facebook.com/pages/Scituate-MA/NOAAs-Stellwagen-Bank-National-Marine-Sanctuary/85010466896?v=wall&viewas=696539820>

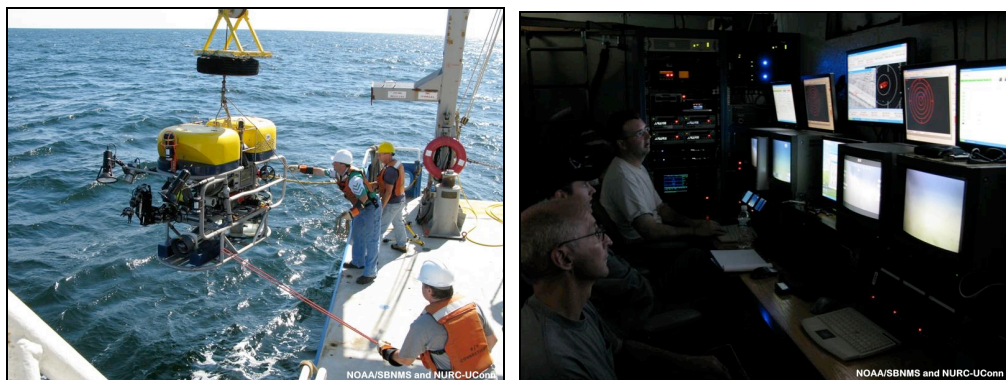
***FIELDWORK AND RESEARCH**

- Staff archaeologists carried out several days of remote sensing surveys, ROV investigations, and SCUBA diving operations from the SBNMS research vessel *Auk*. These surveys located several maritime heritage resources and continued ongoing archaeological site investigations. To date, sanctuary archaeologists have located 40 shipwrecks, comprised of 5 modern and 35 historic vessels. The National Undersea Research Center at the University of Connecticut’s (NURC-UConn) loan of side scan sonar equipment has allowed sanctuary archaeologists to survey 120.5 square-kilometers or 5.5% of the sanctuary from 2002-2009. With almost 95% of the sanctuary left to be surveyed and historical records indicating the possibly of finding an additional 200 more shipwreck sites, many more exciting discoveries are anticipated.
- Staff conducted two ROV transects of the Sponge Forest dive site, located on top of Stellwagen Bank in the Traffic Separation Scheme for Boston. Carried out from the *Auk*, these surveys sought to better localize interesting seafloor habitats and compare summer species diversity to a transect of the same location done in February 2009. Located in 100 to 110 feet of water, the scattered boulder and cobble habitats had little fish life in the winter. Summer transects revealed small schools (2-4 individuals) of cod in areas with a high density of finger sponges. Video of the Sponge Forest can be found at: <http://www.youtube.com/watch?v=DFNX6M1s4MY>

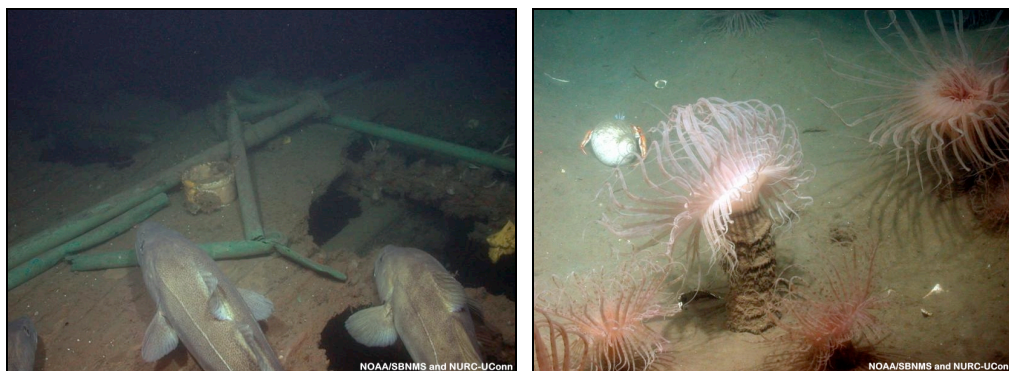
- Staff conducted two days of ROV operations off the R/V *Connecticut* in partnership with NURC-UConn in September. The cruise returned to the steamship *Portland* and documented four other historic shipwrecks. The project used the newly updated NURC-UConn ROV *Kraken 2* outfitted with a high definition video camera. The ONMS Maritime Heritage Program and ONMS Northeast Region provided project support. Since 2002, SBNMS and NURC-UConn partnership has documented 23 shipwrecks sites with an ROV resulting in three sites, *Portland*, *Frank A. Palmer/Louise B. Crary*, and *Joffre*, being successfully nominated to the National Register of Historic Places.

Matthew Lawrence and Ben Cowie-Haskell joined SAC diving representatives, Heather Knowles and Bob Foster on a dive in July off Ms. Knowles' charter dive boat *Gauntlet*. The team visited the unidentified trawler shipwreck located in 110 feet of water on top of Stellwagen Bank. Photos and video will be presented at the October SAC meeting.

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The 2009 Maritime Heritage Characterization and Monitoring Cruise utilized the NURC-UConn ROV *Kraken 2*.



The project captured underwater images of the steamship *Portland* and its resident animals.

EDUCATION AND OUTREACH—Anne Smrcina

*** PUBLICATIONS**

In late winter/early spring, the sanctuary produced an issue of *Stellwagen Banknotes*, which was sent to all individuals on our mailing list and distributed at meetings and public events. The issue featured a cover story on the recent petition to place the wolffish on the endangered species list, an article on a

NOAA program to reduce hooking of whales by tuna gear, and a memorial to Albert Avellar. A fall/winter issue is planned that may contain articles on ocean literacy, ocean acidification and/or an update on whale research in the sanctuary. The annual *Stellwagen Soundings* had a print run of 35,000, with 4,000 mailed and 30,000 delivered (in bulk) to whale watch companies, tourism offices, museums and aquariums, and other centers for mass distribution to the general public. Our most recent poster (a map of the sanctuary and adjacent coastal zone) has had widespread distribution and is now out of print. A minor redesign has been completed and a reprint will be done this fall. The See A Spout brochure has been redesigned with inputs from NOAA Fisheries and WDCHS. Printing is expected this winter.

* VIDEOS

The sanctuary's informational video was submitted to two competitions (Telly Awards for excellence in video production for advertising/pr industry and the Blue Ocean Film Festival). The five-minute film won three bronze Tellies – for Education, Nature/Wildlife and Social Issues. The video was also selected as one of three finalists in the Short Program Category at the Blue Ocean Festival this summer.

* EXHIBITS

A new exhibit on the Automatic Identification System is still in development for both the Provincelands Visitor Center at the Cape Cod National Seashore and the Halibut Point State Park Visitor Center in Rockport. Both facilities are providing the sanctuary with prime locations for the unit. The units have been built, graphics approved and hardware purchased. The final step is completion of the three-part video (whales, AIS, sanctuary-park partnership), which will run on a widescreen monitor in each exhibit.

* MEDIA

The sanctuary continues to provide images and technical information to various media outlets. During the 2009 Sail Boston event, the sanctuary provided a vessel to serve as a media resource. SBNMS was listed as a Sail Boston partner and information about the sanctuary (including a map) was included on the tall ships web site. Wild Chronicles has provided the sanctuary with a copy of its program on whale tagging and has given permission to place the program on the sanctuary web site. The sanctuary has received a review copy of the "A Sea Change" video, for possible use in public presentations.

* EDUCATION

The sanctuary organized and is hosting a four-week mini-course on marine technology and careers with Massasoit Community College (Division of Workforce Development and Community Education) during September and October. During the annual Association of Zoos and Aquariums' meeting, the sanctuary co-authored/designed a poster with the Hawaiian Islands Humpback Whale NMS. The sanctuary offered programs/exhibits at the MA High School Science Symposium, the MA Marine Educators annual meeting and served as a co-sponsor/judge for the annual ROV building competition. The sanctuary education coordinator represented NOAA at an interagency messaging workshop that looked at ocean and climate literacy needs. The sanctuary, as co-sponsor of the annual Boston Harbor Educators Conference in October, prepared the flyer and program book. The annual K-12 marine art contest was an unparalleled success, with over 400 entries this past spring. The Blue Bunny Bookstore and Stellwagen Alive provided support for a reception for all award winners and honorable mentions (at the Dedham store).

* EVENTS

The sanctuary education coordinator now sets off alarms in all airports with her new hip (replaced in April).

RESEARCH ACTIVITIES— David Wiley, Leila Hatch, Michael Thompson and Danielle Cholewiak

*** CHARACTERIZATION OF UNDERWATER NOISE IN THE SBNMS**

(Funded by National Oceanographic Partnership Program 2007-2010): As part of this three year project, low frequency acoustic data were collected and analyzed by researchers from SBNMS, NOAA's Northeast Fisheries Science Center and Cornell University's Bioacoustics Research Program during the spring and summer of 2009. These data are being used to address multiple questions regarding the locations, behaviors, and potentials for hearing loss and masking among vocally active species in the sanctuary. Ship tracking data, were also collected and analyzed by the SBNMS, the US Coast Guard's Research and Development Center and the University of New Hampshire's Center for Coastal and Ocean Mapping, and were used to characterize patterns of large commercial traffic in the sanctuary. These data were further integrated with acoustic data, to assess shipping noise contributions to sanctuary waters. Further collaboration with Marine Acoustics, Inc. (a private company based in Rhode Island) integrated empirical noise data and ship tracking information with data from acoustic propagation models to examine whale behaviors in their acoustic context.

*** DIGITAL TAGGING OF HUMPBACK WHALES**

From July 17th to August 1st, the sanctuary participated in the ongoing collaborative project to investigate the underwater behavior of humpback whales. Over 20 scientists from 9 institutions (Stellwagen Bank National Marine Sanctuary, Duke University, University of New Hampshire, Woods Hole Oceanographic Institute; Bioengineering Laboratory, Whale Center of New England (WCNE), Penn State University, Harvard University, University of Vermont, NOAA Fisheries) worked off NOAA's R/V Nancy Foster and the R/V Auk to tag whales with synchronous motion, acoustic recording tags, while simultaneously mapping prey density over fine and large spatial scales. In addition, the project this year incorporated the use of a video-plankton recorder to quantify plankton abundance, and fecal samples were again collected for nitrogen analyses. Eighteen animals were tagged providing 100.6 hours of data. For the first time, three animals were tagged in the same feeding group. Additionally, visitors from IFAW were hosted on the R/V Auk during several days of the project.

*** MITIGATION AND MONITORING ASSOCIATED WITH CONSTRUCTION AND OPERATION OF LIQUIFIED NATUREAL GAS IMPORT TERMINALS**

Construction of the second LNG terminal to be installed in waters adjacent to the SBNMS, run by Neptune LLC, restarted in spring 2009. Six real-time automatic detection buoys were deployed to operate throughout this year's construction window (May to October 2009). These buoys are detecting right whales in the construction area and triggering mandated responses to reduce rates of whale collision and excessive ensonification by construction noise. The SBNMS staff reviewed weekly reports throughout this period, and meetings were held with the company's environmental compliance team to ensure mitigation criteria were implemented. Neptune is scheduled to begin operations in late winter/spring 2010. The port that is currently operational, run by Northeast Gateway LLC, did not receive any shipments and was temporarily offline in summer 2009 while an environmental impact review was conducted for maintenance and repair events in winter-early spring 2009. However, the ten real-time detection buoys installed in the Boston shipping lanes to mitigate impacts due to transiting LNG vessels continue to provide information. Training to outfit LNG ships with systems that can decode calling right whale alerts from the buoys that are now being transmitted via the Automatic Identification System took place in early September. This system will be piloted this fall.

*** INTERNAL WAVE PROJECT**

The sanctuary and Woods Hole Oceanographic Institution completed the second year of a two-year project to investigate the effect of internal waves on the distribution and behavior of baleen whales in the sanctuary. Two moorings with strings of vertical temperature sensors were deployed for a total of 11 days between June and July to monitor for the presence and absence of and describe the structure of internal

waves. Seven days of fieldwork were conducted at a position near one of the moorings to quantify cetacean distribution and behavior before and after internal wave activity. In addition, a video- plankton recorder was used to quantify abundance of plankton in the water column.

FACILITIES/VESSEL OPERATION AND SPECIAL PROJECTS—Ben Cowie-Haskell

***FACILITIES**

- Our facilities operations specialist, David Waldrup, resigned and took a job with the U.S. Coast Guard where he worked previously. Ben assumed his duties until a replacement can be hired which will take approximately 6 months.
- The SBNMS has successfully purchased two parcels of land near the boathouse in Scituate for \$350,000. This land will be used for overflow parking and for storing boat trailers and equipment. Parking is a premium in our residential neighborhood so access to this land will allow us to better fulfill our mission.

***VESSELS**

- The research vessel *AUK* continues to operate with no major problems. It conducted approx. 65 trips in FY09. It is operated and maintained by the capable hands of Capt. Bob Wallace. Capt. Wallace maintains a pool of three mates and utilizes them when needed.
- The 28-foot research vessel *Gannet* was sold last spring because a survey determined its hull was compromised.
- ONMS acquired for the SBNMS a 16-foot rigid hull inflatable for use during whale tagging research.

***MARINE DEBRIS**

- Capt. Frank Mirarchi, a groundfisherman in Scituate, continues to document marine debris that he catches in his nets.
- Dave Haley, the marine debris coordinator in Scituate, continues to work with Ben and area fishermen to encourage them to properly dispose of marine debris if they encounter it.
- Stellwagen Alive conducted two successful Stellwagen Sweeps, one out of Sandwich in state waters that was coordinated with Mass. Division of Marine Fisheries, and one out of Provincetown that occurred in the sanctuary. These sweeps collected and recycled over 10,000 pounds of marine debris, some of which was obsolete gear from backyards. Another sweep is planned for Gloucester.

***TUNA FISHING INTERACTION WITH WHALES/SEABIRDS**

- In 2007-2009 there have been numerous reports of whales and one report of a seabird getting entangled in tuna fishing gear. In addition there have been several reports of harassment of whales by tuna fishermen.
- In response, NOAA ran an ad campaign in the On The Water fishing magazine in the June, July and Sept issues. This is the most widely read fishing magazine in the Northeast. On The Water editors were extremely helpful in producing the ads and provided NOAA a discounted price for them.
- The ad campaign appeared to be having a positive effect until Regina Asmustis-Silvia notified us of additional entanglements in August.
- In response the SBNMS has again partnered with On The Water magazine to run a 10 second spot on their television show that encourages fishermen to maintain a safe trolling distance from whales. The spot will run three times a week throughout October.

***INVASIVE SPECIES SURVEYS**

- Ben received a \$49,000 grant from the NOAA Aquatic Invasive Species Program to conduct three surveys in the SBNMS to look for the invasive tunicate *Didemnum vexillum*. This tunicate has been documented on Georges Bank covering significant seafloor area. It has been reported from Stellwagen Bank sanctuary but not confirmed.
- A \$44,000 contract was awarded to the Advanced Habitat Imaging Consortium that operates the towed camera HabCam that takes high-resolution, geo-referenced overlapping seafloor imagery. This contract will result in three surveys (Fall 09, Spring 10, and Summer 10) each covering 100 nautical miles and the resulting imagery analysis.

***CHINA—MARINE PROTECTED AREAS MANAGEMENT**

Ben participated in a two-day meeting on Marine Protected Area (MPA) management in Inner Mongolia, China, in September, which was hosted and run by the State Oceanic Administration and was an activity under the US-China Science and Technology Agreement. Approximately 40 participants attended from the four existing MPA sites, the national offices of the State Oceanic Administration, and various universities. Ben provided a detailed presentation on management plans focusing on the formulation of strategies and developing cost estimates for implementation. This information was well received and corresponded well with the objectives of the workshop. Our input will assist the Chinese in developing management plans for their four Maps as well as national guidelines for Maps.

SISTER SANCTUARY PROGRAM—Nathalie Ward

Nathalie is working with CEBSE, Centro para la Conservación y Ecodesarrollo de la Bahía de Samaná y su Entorno, a local NGO in the Dominican Republic, who has received funds from the sanctuary to design a sister sanctuary exhibit for the CEBSE museum in Samana, D.R. Additionally, she will be working with the Nature Conservancy's office in the Dominican Republic's and Dominican partners to publish a *Sister Sanctuary Whale Watch Handbook for Naturalists*, which will be published in Spanish and English.

SBNMS VOLUNTEER PROGRAM—Nathalie Ward

Over the past year, volunteer, Evelyn Gansen has developed the SBNMS Volunteer Handbook, which complements the national programs newly inaugurated guidelines and well as aspects uniquely geared to the sanctuary. Under the DMP, a priority action is the development of a docent program. Liz Pomfret is now working as part time Volunteer Outreach Coordinator to develop a docent program targeting colleges and universities. The programs are funded through the sanctuaries program and IFAW.